



# UNITED STATES PATENT AND TRADEMARK OFFICE

UNITED STATES DEPARTMENT OF COMMERCE  
United States Patent and Trademark Office  
Address: COMMISSIONER FOR PATENTS  
P.O. Box 1450  
Alexandria, Virginia 22313-1450  
www.uspto.gov

APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/730,568	12/08/2003	Dong-Jae Shin	5000-1-485	3059
33942	7590	06/06/2006	EXAMINER	
CHA & REITER, LLC 210 ROUTE 4 EAST STE 103 PARAMUS, NJ 07652			FLORES RUIZ, DELMA R	
			ART UNIT	PAPER NUMBER
			2828	

DATE MAILED: 06/06/2006

Please find below and/or attached an Office communication concerning this application or proceeding..

**Office Action Summary**

Application No.

10/730,568

Applicant(s)

SHIN ET AL.

Examiner

Delma R. Flores Ruiz

Art Unit

2828

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

**Period for Reply**

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

**Status**

- 1) ☒ Responsive to communication(s) filed on 03 March 2006.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

**Disposition of Claims**

- 4) ☒ Claim(s) 1-13 is/are pending in the application.
- 4a) Of the above claim(s) \_\_\_\_\_ is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 1-4 and 7-13 is/are rejected.
- 7) ☒ Claim(s) 5 and 6 is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

**Application Papers**

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on \_\_\_\_\_ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

**Priority under 35 U.S.C. § 119**

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some \* c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

\* See the attached detailed Office action for a list of the certified copies not received.

**Attachment(s)**

- 1) ☒ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☒ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)  
Paper No(s)/Mail Date 5/2/2006.
- 4) ☐ Interview Summary (PTO-413)  
Paper No(s)/Mail Date. \_\_\_\_\_.
- 5) ☐ Notice of Informal Patent Application (PTO-152)
- 6) ☐ Other: \_\_\_\_\_.

## DETAILED ACTION

### *Information Disclosure Statement*

The information disclosure statement (IDS) submitted on 05/02/2006 have been considered by the examiner.

### *Claim Rejections - 35 USC § 112*

The following is a quotation of the second paragraph of 35 U.S.C. 112:

The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

Claims 1 – 6 are rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention. In claim 1, applicant recites: "a wavelength of the injected light", this limitation is indefinite because it is not clear how the is injected light when the Fabry-Perot laser receiving not injected light. ***Correction is required.***

***Claim Rejections - 35 USC § 102***

The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(e) the invention was described in (1) an application for patent, published under section 122(b), by another filed in the United States before the invention by the applicant for patent or (2) a patent granted on an application for patent by another filed in the United States before the invention by the applicant for patent, except that an international application filed under the treaty defined in section 351(a) shall have the effects for purposes of this subsection of an application filed in the United States only if the international application designated the United States and was published under Article 21(2) of such treaty in the English language.

Claims 1, 2, 8, 10 – 12 are rejected under 35 U.S.C. 102(e) as being anticipated by Yu et al. (5,651,016).

***Regarding claim 1***, Yu discloses a wavelength division multiplexing (WDM) light source, comprising: a Fabry-Perot laser (Column 3, Line 50) for receiving spectrum-spliced incoherent light to amplify and output only an oscillation mode matching with a wavelength of the injected light; and a bias controlling unit for limiting a current supplied to the Fabry-Perot laser to a bias, current, wherein the bias current has a value adjacent to a threshold current of the Fabry-Perot laser, and wherein the value of the threshold current changes according to temperature of the Fabry Perot laser (Column 1, Lines 44 – 51, Column 5, Lines 9 – 35 and Column 8, Lines 5 – 12).

**Regarding claim 2,** Yu discloses a threshold current sensor for sensing the threshold current of the Fabry-Perot laser; and a bias controller for adjusting the bias current supplied to the Fabry-Perot laser depending on the sensed threshold current (Column 1, Lines 44 – 51, Column 5, Lines 9 – 35 and Column 8, Lines 5 – 12).

**Regarding claim 8,** Yu disclose a method for maintaining wavelength-locking of a Fabry-Perot laser regardless of a change of external temperature, the method comprising the steps of: (a) measuring a threshold current of the Fabry-Perot laser, whose threshold current is changed according to a temperature and a relationship between injected light changed depending to a temperature and a wavelength of oscillation mode; (b) supplying a bias current having a value adjacent to the threshold current to the Fabry-Perot laser; and (c) injecting spectrum-spliced incoherent light into the Fabry-Perot laser, (Column 1, Lines 44 – 51, Column 5, Lines 9 – 35 and Column 8, Lines 5 – 12).

**Regarding claims 10 and 11,** Yu discloses a is carried out by measuring a change of optical power and impedance of the Fabry-Perot laser (Column 5, Lines 9 – 35).

**Regarding claim 12,** Yu discloses a method for maintaining wavelength-locking of a Fabry-Perot laser regardless of a change of external temperature, the method

comprising the steps of: (a) measuring a threshold current of the Fabry-Perot laser accord, whose threshold current is changed according to various temperatures and a relationship between injected light changed depending to a temperature and a wavelength of oscillation mode; (b) converting the temperature and the threshold current corresponding to the temperature into data and for storing the data; (c) measuring a working temperature of the Fabry-Perot laser; (d) supplying a bias current to the Fabry-Perot laser using the stored data, the bias current having a value adjacent to a threshold current corresponding to the working temperature of the Fabry-Perot laser; and (e) injecting spectrum-spliced incoherent light into the Fabry-Perot laser (Column 1, Lines 44 – 51, Column 5, Lines 9 – 35 and Column 8, Lines 5 – 12).

***Claim Rejections - 35 USC § 103***

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

Art Unit: 2828

Claims 3, 9 and 13 are rejected under 35 U.S.C. 103(a) as being unpatentable over Yu et al. (5,651,016) in view of the applicant's prior art and further in view of Han et al. (US 2004/0213574).

With respect to claims 3, 9, and 13, Yu and the applicant's prior art disclose everything as claimed above without specifically indicating the bias controlling unit controls the bias current supplied to the Fabry perot laser to have a value been at least one half and at most one and half of the threshold current of the Fabry perot laser. The bias controlling unit controls the bias current supplied to the Fabry perot laser to have a value between at least one half and at most one and half of the threshold current of the Fabry perot laser is well taught by Han (see par. 0035). It would have been obvious to one having ordinary skill in the art at the time of invention to have the bias current supplied to the Fabry perot laser to have a value between at least one half and at most one and half of the threshold current of the Fabry perot laser, simply, to stabilized the output power of the laser, as indicated by Han (see paragraph 0035).

Claim 4 is rejected under 35 U.S.C. 103(a) as being unpatentable over Yu et al. (5,651,016) in view of the applicant's prior art and further in view of Suda (US 6,324,197).

With respect to claim 4, Yu and the applicant's prior art disclose everything as

claimed above without specifically indicating the threshold current sensor includes an optical power sensor for sensing the threshold current of the Fabry-perot laser based on a change of optical power of the Fabry perot laser. The threshold current sensor with an optical power sensor for sensing the threshold current of the Fabry-perot laser based on a change of optical power of the Fabry perot laser is well taught by Suda; this is in consideration that a sensor is disclosed in a photodiode (see col. 2, Lines 40-45). It would have been obvious to one having ordinary skill in the art at the time of invention to include a power sensor for sensing the threshold current of the Fabry-perot laser based on a change of optical power of the Fabry perot laser, simply, to control an output current of an electric current power source for electrically energizing the laser diode, as indicated by Suda (see col. 2, Lines 36-39).

Claim 7 is rejected under 35 U.S.C. 103(a) as being unpatentable over Yu et al. (5,651,016) in view of the applicant's prior art, Lee et al. (US pub. 2003/0206740), and further in view of King et al. (US pat. 5,812,572).

With respect to claim 7, Yu discloses a WDM Fabry perot laser where a bias controlling unit for adjusting a bias current supplied to the Fabry perot laser to a value adjacent to a threshold current ((Column 1, Lines 44 – 51, Column 5, Lines 9 – 35 and Column 8, Lines 5 – 12)). Yu also discloses that the threshold current is changed according to a temperature (see col. 1, Lines 44 – 51) Yu fail to disclose a Fabry Perot



laser for suppressing an oscillation mode mismatched with a wavelength of injected light and for amplifying and outputting only an oscillation mode matching with the wavelength of the injected light', a wavelength division multiplexer for spectrum-splicing light, which is generated from the light source, to provide the spectrum-spliced light to the Fabry Perot laser as injecting light, and for multiplexing a wavelength-locked signal wavelength-locked by the Fabry Perot laser', a circulator for inputting the light generated from the light source into the wavelength division multiplexer, and for outputting a multiplexed signal multiplexed by the wavelength division multiplexer to a transmission link; and a threshold current sensor for sensing a threshold current of the Fabry Perot laser. However, the applicant's prior art discloses a Fabry Perot laser for suppressing an oscillation mode mismatched with a wavelength of injected light and for amplifying and outputting only an oscillation mode matching with the wavelength of the injected light', a wavelength division multiplexer for spectrum-splicing light, which is generated from the light source, to provide the spectrum-spliced light to the Fabry Perot laser as injecting light, and for multiplexing a wavelength-locked signal wavelength-locked by the Fabry Perot laser. A circulator for inputting the light generated from the light source into the wavelength division multiplexer, and for outputting a multiplexed signal multiplexed by the wavelength division multiplexer to a transmission link is well taught by Lee (see fig. 8 and paragraph 0124). A threshold current sensor for sensing a threshold current of the Fabry Perot laser is well taught by King (see col. 8, Lines 1-3). It would have been obvious to one having ordinary skill in the art at the time of invention

to combine the above references above, simply, to increase the number of wavelength-divided channels, as disclose by the applicant's prior art.

### ***Allowable Subject Matter***

Claims 5 and 6 are objected to as being dependent upon a rejected base claim, but would be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims.

### ***Response to Arguments***

Applicant's arguments with respect to claims 1 - 13 have been considered but are moot in view of the new ground(s) of rejection.

### ***Conclusion***

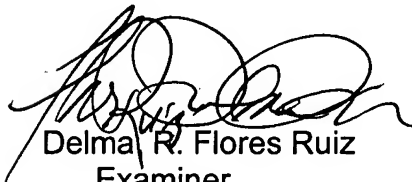
Any inquiry concerning this communication or earlier communications from the examiner should be directed to Delma R. Flores Ruiz whose telephone number is (571) 272-1940. The examiner can normally be reached on M - F.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Min Sun Harvey can be reached on (571) -272-1835. The fax phone

Art Unit: 2828

number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).



Delma R. Flores Ruiz  
Examiner  
Art Unit 2828



Min Sun Harvey  
Supervisor Patent Examiner  
Art Unit 2828

DRFR/MH  
May 12, 2006